STRYMON MELINUS ON BEAR-GRASS, AN ANT SYMBIONT, AND PARASITES FROM REARINGS IN ARIZONA

(Lepidoptera: Lycaenidae)

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A total of fifty larvae of *Strymon melinus* Hübner were collected on the flowering panicles from three plants of bear-grass, *Nolina microcarpa* Wats. (Liliaceae), Molino Basin, 4480 ft., Santa Catalina Mountains, Pima County, Arizona on 12 June 1960. From this material, each host plant contained four larval instars, which might suggest different oviposition dates or incubation periods of ova. There was some variation in coloration of all observed larval instars, with ninety percent closely matching the straw color of the flowers and the remainder ranging from brilliant lime-green to pink.

Feeding activity was largely confined to two portions of the host plant, with the ultimate and penultimate instars feeding on the flowers, and the earlier instars feeding on the stem proximad to the bracts of the plant. Ultimate instar larvae were occasionally present on the basal portion of the bracts, but were never seen feeding there.

The larvae were obviously attended by workers of a conspicuous black ant, *Camponotus ulcerosus* Wheeler. Those larvae which were generally well concealed on the host plant were easily detected by the presence of the symbionts. When engaged with the lycaenid, the ants continually combed the entire dorsum of the larva with their flagellar antennal segments using brisk, sweeping strokes. This association was observed for forty-five minutes in the field where numerous encounters were noted. The combing intervals ranged from 0.25 to 1.50 minutes with considerably more time (one minute or more) spent on the larger, later instar larvae. These symbionts were frequently observed walking upon the dorsum while combing the larger larvae. This is possibly a result of the linear or lengthwise approach made by the ant to the larva during most combing engagements noted.

This material was taken home for rearing and placed in one gallon wide-mouth jars. On 24 June, adults of a braconid, *Apanteles* sp. (possibly *A. theclae* Riley) appeared. Upon closer examination, further indication of parasite activity was noted by the exit of *Apanteles* larvae from lycaenid hosts and subsequent white

cocoons of the parasite in the vicinity of the host. The duration of pupation of this parasite ranged from 72 to 96 hours. Although the healthy appearing lycaenid larvae were isolated at this time, it was essentially too late as eighty percent (40 larvae) of the individuals had become parasitized by this braconid.

A total of ten lycaenids pupated. Four perfect *Strymon melinus* emerged following a pupation period of 9 to 11 days. Three pupae were parasitized by a large chalcid, *Metadontia amoena* (Say), with one individual per host. The emergence of these occurred 20, 21, and 35 days following pupation of their respective hosts. A single pupa of thirteen days duration produced a mass emergence of the eulophid, *Tetrastichus lissus* Burks. The remaining two pupae turned greasy with no further development.

The status of *Nolina microcarpa* as a larval food plant for *Strymon melinus* appears not to have been previously recorded. From my observations and rearing, this euryphagic lycaenid appears to be well established on it as a normal food plant in this area. The association between the ant, *C. ulcerosus* and *S. melinus* is also apparently unreported. The distribution of this ant is not widespread and appears limited to a few localities in the mountains of southern Arizona in which it is essentially a member of the Upper-sonoran biota along with bear-grass. The parasites reared, although possible extensions of earlier records, do contribute as important dynamic entities in the ecology of this host population associated with bear-grass.

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